CURRICULUM VITAE – PETER HUSZÁR

OFFICE: Department of Atmospheric Physics, Faculty of Mathematics and Physics, Charles University
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EDUCATION:

Degree**:** Ph.D. (2010), Mgr. (Msc., 2004)
2005 – 2010 Doctoral studies, Faculty of Mathematics and Physics, Charles University, Prague
1999 – 2004 MSc. Studies, Faculty of Mathematics and Physics, Charles University, Prague

CURRENT AND PAST POSITIONS

Department of Atmospheric Physics, Faculty of Mathematics and Physics, Charles University, Prague, Czech Republic
since 2011 academic research scientist
since 2017 deputy head of the department
since 2024 Associate professor/department head

- supervisor of BCs. and MSc. Thesises, supervising PhD students
- head of the chemistry modeling group, lectures:
  Atmospheric chemistry, Physics of clouds and precipitation, Atmospheric dynamics, Atmospheric electricity, Aviation meteorology, Linux Shell Programming

Institute of Informatics, Czech Academy of Sciences, Prague, Czech Republic
2016-2017 environmental software development

Ministry of the Environment of the Czech Republic
2017-2018 participation in research project concerning central Europe's air-quality

Past positions:

2007 Coupling ALADIN-Climate and CAMx – developing meteorological interface, Czech Hydro meteorological Institute, Czech Republic
2008 Modeling of sudden plume release, Institute of Informatics, Czech Academy of Science

POSITIONS ABROAD

2011 – 2012 Centre National de Recherches Meteorologiques (CNRM), Meteo-France, Toulouse, **France**
Post-doc position, global climate-chemistry modeling, evaluation of global impact of aviation on atmospheric chemistry and climate

INTERNATIONAL COLLABORATIONS AND VISITS

Institute of Meteorology and Climatology, BOKU Vienna, Austria, research collaboration on global climate-chemistry model downscaling to regional scale using chemistry-transport models, 2018-2020

Institute for Geophysics, Astrophysics, and Meteorology/Inst. of Physics and Wegener Center for Climate and Global Change, University of Graz, Austria, research collaboration focused on uncertainty analysis in chemistry modeling, short term visits in 2017-2018

Laboratoire Atmosphères, Milieux, Observations Spatiales, IPSL, Université Pierre et Marie Curie, Paris, France, research collaboration on using satellite data in tropospheric chemistry modeling, since 2015

National Center for Atmospheric Research (NCAR), Boulder, Colorado, USA, collaboration in biogenic emissions modeling and adopting them in chemistry modeling, 1 month visit in 2012

SCIENTIFIC PROJECTS

Project OP-JAK "Natural and anthropogenic geohazards" no. CZ.02.01.01/00/22_008/0004605, 2024-2028, role in the project: **key team member**

Project EC Horizon Europe HORIZON-CL5-2021-D1-01 "Non-CO_2 Forcers And Their Climate, Weather, Air, Quality And Health Impacts" (FOCI) 101056783, 2022-2026, role in the project: **team member**

Project of the Technology Agency of the Czech Republic No. SS02030031: "Air quality Research, Assessment and Monitoring Integrated System" (ARAMIS), 2020-2026. Role in the project: **project team leader** for the Faculty of Mathematics and Physics

Project of the Czech Academy of Sciences No. 19-10747Y "Modelling the interactions of air pollution with meteorology over urban areas in high resolution", 2019 – 2021, role in the project: **principal investigator**, tasks: regional climate-chemistry modeling over urban areas

Automated synoptic front recognition algorithm development, InMeteo Ltd, applied research project MFF UK, 2018, role in the project: **team member**, tasks: review of literature about front detection, coordination of the algorithm development

Project OP PPR URBI PRAGENSI "Urbanized weather and air-quality prediction for Prague", 2018 – 2020, role in the project: **team member**, tasks: urban weather/climate/air-quality modeling

Analysis of circulation in idealized model of uranium tailings on Pribram deposit, Diamo, applied research project MFF UK 17/002, 2017, role in the project: **team member**, tasks: review of literature on radon transport and circulation in soils and its release in the air above

Project OP PPR "Verification of the feasibility and commercial potential of research results of Charles University" No.: CZ.07.1.02/0.0/0.0/16_023/0000108, 2017 – 2018, role in the project: **team member**, tasks: regional climate model assessment of urbanization effect on climate

Project of the Czech Academy of Sciences No. 13-19733P "Impact of city emissions of atmospheric chemistry and climate", 2013 – 2015, role in the project: **principal investigator**, tasks: regional climate-chemistry modeling over urbanized areas

Project EC OP NN UHI (Developing mitigation and risk prevention and management strategies concerning the urban heat island) No. 3 CE292P3, 2012 – 2015, role in the project: **team member**, tasks: regional climate modeling of the urban heat island effects

Project ITAAC (Impact du Transport Aérien sur l'Atmosphère et le Climat) by the "Réseau Thématique de Recherche Avancée Science et Technologie pour l'Aéronautique et l'Espace" foundation, 2011 – 2012, role in the project: **team member**, tasks: global climate-chemistry modeling, evaluation of the aviation impact on global climate and air chemistry

Project EC FP7 MEGAPOLI (Megacities: Emissions, urban, regional and Global Atmospheric POLlution and climate effects, and Integrated tools for assessment and mitigation), 2008 – 2011, role in the project: **team member**, tasks: chemistry modeling of urban emission in regional scale

Project EC FP6 QUANTIFY (Quantifying the Climate Impact of Global and European Transport Systems), 2005 – 2010, role in the project: **team member**, tasks: chemistry modeling of ship traffic emissions

Project EC FP6 CECILIA (Central and Eastern Europe Climate Change Impact and Vulnerability Assessment), 2006-2009, role in the project: **team member**, tasks: climate-chemistry modeling of the impact of climate change on central European air-quality

RESEARCH INTEREST

Investigating the links between climate and atmospheric chemistry, coupling climate and atmospheric chemistry models on regional to local scale, air pollution and regional climate modeling, urban climate, interactions of aerosols with clouds and precipitation, emission modeling

LANGUAGES

Hungarian, Slovak, Czech – native speaker
English – fluent speaking, reading and writing
French – intermediate speaking, writing and reading

RELEVANT SKILLS

Programming in Fortran, Python, SQL, PHP, Unix command line and scripting

CITATIONS AND AUTHOR ID

H-index 17, number of citations: 517
ORCID: 0000-0003-2954-8347; Researcher ID: P-5141-2016; Scopus ID: 35272412300; Google Scholar: LGIVFmIAAAAJ

PUBLICATIONS

Peer-reviewed journals with IF

- Bartík, L., **Huszár, P.**, Karlický, J., Vlček, O., and Eben, K.: Modeling the drivers of fine PM pollution over Central Europe: impacts and contributions of emissions from different sources, Atmos. Chem. Phys., 24, 4347–4387, https://doi.org/10.5194/acp-24-4347-2024, 2024
- Karlický, J., Rieder, H.E., **Huszár, P.**, Peiker, J. and Sukhodolov, T.: A cautious note advocating the use of ensembles of models and driving data in modeling of regional ozone burdens, Air. Qual. Atmos. Health, https://doi.org/10.1007/s11869-024-01516-3, 2024.
- Belda, M., Benešová, N., Resler, J., **Huszár, P.**, Vlček, O., Krč, P., Karlický, J., Juruš, P., and Eben, K.: FUME 2.0 – Flexible Universal processor for Modeling Emissions, Geosci. Model Dev., 17, 3867–3878, https://doi.org/10.5194/gmd-17-3867-2024, 2024.
- **Huszar, P.**, Prieto Perez, A. P., Bartík, L., Karlický, J., and Villalba-Pradas, A.: Impact of urbanization on fine particulate matter concentrations over central Europe, Atmos. Chem. Phys., 24, 397–425, https://doi.org/10.5194/acp-24-397-2024, 2024.
- Liaskoni, M., **Huszar, P**., Bartík, L., Prieto Perez, A. P., Karlický, J., and Vlček, O.: Modelling the European wind-blown dust emissions and their impact on particulate matter (PM) concentrations, Atmos. Chem. Phys., 23, 3629–3654, https://doi.org/10.5194/acp-23-3629-2023, 2023.
- **Huszar, P.**, Karlický, J., Bartík, L., Liaskoni, M., Prieto Perez, A. P., and Šindelářová, K.: Impact of urbanization on gas-phase pollutant concentrations: a regional-scale, model-based analysis of the contributing factors, Atmos. Chem. Phys., 22, 12647–12674, https://doi.org/10.5194/acp-22-12647-2022, 2022.
- Sindelarova, K., Markova, J., Simpson, D., **Huszar, P.**, Karlicky, J., Darras, S., and Granier, C.: High-resolution biogenic global emission inventory for the time period 2000–2019 for air quality modelling, Earth Syst. Sci. Data, 14, 251–270, https://doi.org/10.5194/essd-14-251-2022, 2022.
- **Huszar, P.**, Karlický, J., Marková, J., Nováková, T., Liaskoni, M., and Bartík, L.: The regional impact of urban emissions on air quality in Europe: the role of the urban canopy effects, Atmos. Chem. Phys., 21, 14309–14332, https://doi.org/10.5194/acp-21-14309-2021, 2021.
- Resler, J., Eben, K., Geletič, J., Krč, P., Rosecký, M., Sühring, M., Belda, M., Fuka, V., Halenka, T., **Huszár, P**., Karlický, J., Benešová, N., Ďoubalová, J., Honzáková, K., Keder, J., Nápravníková, Š., and Vlček, O.: Validation of the PALM model system 6.0 in a real urban environment: a case study in Dejvice, Prague, the Czech Republic, Geosci. Model Dev., 14, 4797–4842, https://doi.org/10.5194/gmd-14-4797-2021, 2021.
- Musiolková, M., **Huszár, P.**, Navrátil, M. and Špunda, V.: Impact of season, cloud cover, and air pollution on different spectral regions of ultraviolet and visible incident solar radiation at the surface. Q J R Meteorol Soc, 1– 16, 2021, **https://doi.org/10.1002/qj.4102**
- Pisoft, P., Sacha, P., Polvani, L. M., Añel, J. A., de la Torre, L., Eichinger, R., Foelsche, U., **Huszar, P.**, Jacobi, Ch., Karlicky, J., Kuchar, A., Miksovsky, J., Zak, M. and Rieder, H. E.: Stratospheric contraction caused by increasing greenhouse gases, Environ. Res. Lett., 16, 064038, 2021.
- Karlický, J., **Huszár, P.**, Nováková, T., Belda, M., Švábik, F., Ďoubalová, J., and Halenka, T.: The “urban meteorology island”: a multi-model ensemble analysis, Atmos. Chem. Phys., 20, 15061–15077, https://doi.org/10.5194/acp-20-15061-2020, **2020**.
- **Huszar, P.**, Karlický, J., Ďoubalová, J., Nováková, T., Šindelářová, K., Švábik, F., Belda, M., Halenka, T., and Žák, M.: The impact of urban land-surface on extreme air pollution over central Europe, Atmos. Chem. Phys., 20, 11655–11681, https://doi.org/10.5194/acp-20-11655-2020, **2020**.
- Ďoubalová, J.; **Huszár, P.**; Eben, K.; Benešová, N.; Belda, M.; Vlček, O.; Karlický, J.; Geletič, J.; Halenka, T.: High Resolution Air Quality Forecasting Over Prague within the URBI PRAGENSI Project: Model Performance During the Winter Period and the Effect of Urban Parameterization on PM, Atmosphere, 11, 625, **2020**.
- **Huszar, P.**, Karlický, J., Ďoubalová, J., Šindelářová, K., Nováková, T., Belda, M., Halenka, T., Žák, M., and Pišoft, P.: Urban canopy meteorological forcing and its impact on ozone and PM2.5: role of vertical turbulent transport, Atmos. Chem. Phys., 20, 1977–2016, https://doi.org/10.5194/acp-20-1977-2020, **2020**.

- Halenka, T., Belda, M., **Huszar, P**., Karlicky, J., Novakova, T., Zak, M.: On the comparison of urban canopy effects parameterisations, Int. J. Environ. Pollut., 65(1-3), https://doi.org/10.1504/IJEP.2019.101840, **2019**
- **Huszar, P.**, Belda, M., Karlický, J., Bardachova, T., Halenka, T., and Pisoft, P.: Impact of urban canopy meteorological forcing on aerosol concentrations, Atmos. Chem. Phys., 18, 14059-14078, https://doi.org/10.5194/acp-18-14059-2018, **2018**.
- Karlický, J., **Huszár, P**., Halenka, T., Belda, M., Žák, M., Pišoft, P., and Mikšovský, J.: Multi-model comparison of urban heat island modelling approaches, Atmos. Chem. Phys., 18, 10655-10674, https://doi.org/10.5194/acp-18-10655-2018, **2018**.
- **Huszar**, P., Karlický, J., Belda, M., Halenka, T. and Pišoft, P.: The impact of urban canopy meteorological forcing on summer photochemistry, Atmos. Environ., 176, 209–228, **2018**.
- Pisoft, P., Sacha, P., Miksovsky, J., **Huszar**, P., Scherllin-Pirscher, B., and Foelsche, U.: Revisiting internal gravity waves analysis using GPS RO density profiles: comparison with temperature profiles and application for wave field stability study, Atmos. Meas. Tech., 11, 515-527, https://doi.org/10.5194/amt-11-515-2018, **2018**.
- **Huszár**, P., Belda, M., Karlický, J., Pišoft, P., and Halenka, T.: The regional impact of urban emissions on climate over central Europe: present and future emission perspectives, Atmos. Chem. Phys., 16, 12993-13013, doi:10.5194/acp-16-12993-2016, **2016**.
- **Huszár**, P., Belda, M., and Halenka, T.: On the long-term impact of emissions from central European cities on regional air quality, Atmos. Chem. Phys., 16, 1331-1352, doi:10.5194/acp-16-1331-2016, **2016**.
- **Huszár**, P., Halenka, T., Belda, M., Zak, M., Sindelarova, K., and Miksovsky, J.: Regional climate model assessment of the urban land-surface forcing over central Europe, Atmos. Chem. Phys., 14, 12393-12413, doi:10.5194/acp-14-12393-2014, **2014**.
- Ricaud, P., Sič, B., El Amraoui, L., Attié, J.-L., Zbinden, R., **Huszár**, P., Szopa, S., Parmentier, J., Jaidan, N., Michou, M., Abida, R., Carminati, F., Hauglustaine, D., August, T., Warner, J., Imasu, R., Saitoh, N., and Peuch, V.-H.: Impact of the Asian monsoon anticyclone on the variability of mid-to-upper tropospheric methane above the Mediterranean Basin, Atmos. Chem. Phys., 14, 11427-11446, doi:10.5194/acp-14-11427-2014, **2014**.
- **Huszár**, P., Teyssèdre, H., Michou, M., Voldoire, A., Olivié, D. J. L., Saint-Martin, D., Cariolle, D., Senesi, S., Salas Y Melia, D., Alias, A., Karcher, F., Ricaud, P., and Halenka, T.: Modeling the present and future impact of aviation on climate: an AOGCM approach with online coupled chemistry, Atmos. Chem. Phys., 13, 10027-10048, doi:10.5194/acp-13-10027-2013, **2013**.
- Juda-Rezler, K., Reizer, M., **Huszár**, P., Krueger, B., Zanis, P., Syrakov, D., Katragkou, E., Trapp, W., Melas, D., Chervenkov, H., Tegoulias, I. and Halenka, T.: Modelling the effects of climate change on air quality over central and Eastern Europe: concept, evaluation and projections, Clim. Res., 53:179-203, 2012 doi: 10.3354/cr01072, **2012.**
- **Huszár**, P., Miksovsky, J., Pisoft, P., Belda, M. and Halenka, T.: Interactive coupling of a regional climate model and a chemistry transport model: Evaluation and preliminary results on ozone and aerosol feedback, Clim. Res., 51:59-88, doi: 10.3354/cr01054, **2012**.
- Pišoft, P., Holtanová, E., **Huszár**, P., Mikšovský, J. And Žák, M: Imprint of the 11-year solar cycle in reanalyzed and radiosonde datasets: a spatial frequency analysis approach, Clim. Change, 110(1-2), 85-99. doi:10.1007/s10584-011-0147-0, **2012**.
- **Huszár**, P., Juda-Rezler, K., Halenka, T., Chervenkov, H. and others: Effects of climate change on ozone and particulate matter over Central and Eastern Europe, Clim. Res. 50, 51-68, doi:10.3354/cr01036, **2011**.
- Zanis, P., E. Katragkou, I. Tegoulias, A. Poupkou, D. Melas, P. **Huszár**, F. Giorgi: Evaluation of near surface ozone in air quality simulations forced by a regional climate model over Europe for the period 1991-2000, Atmos. Environ., 45(36), 6489-6500, doi:10.1016/j.atmosenv.2011.09.001, **2011**.
- Katragkou, E., Zanis, P., Tegoulias, I., Melas, D., Kioutsioukis, I., Krüger, B. C., **Huszár**, P., Halenka, T., and Rauscher, S.: Decadal regional air quality simulations over Europe in present climate: near surface ozone sensitivity to external meteorological forcing, Atmos. Chem. Phys., 10, 11805-11821, doi:10.5194/acp-10-11805-2010, **2010**.
- **Huszár**, P., Cariolle, D., Paoli, R., Halenka, T., Belda, M., Schlager, H., Miksovsky, J., and Pisoft, P.: Modeling the regional impact of ship emissions on NOx and ozone levels over the Eastern Atlantic and Western Europe using ship plume parameterization, Atmos. Chem. Phys., 10, 6645-6660, doi:10.5194/acp-10-6645-2010, **2010**.
- Krüger, B. C., Katragkou, E., Tegoulias, I., Zanis, P., Melas, D., Coppola, E., Rauscher, S., **Huszár**, P., and Halenka, T.: Regional photochemical model calculations for Europe concerning ozone levels in a changing climate, Q. J. Hung. Meteorol. Serv., 112(3-4), 285-300, **2008**.

Peer reviewed publications without IF

- Karlický, J., **Huszár**, P. and Halenka, T.: Validation of gas phase chemistry in the WRF-Chem model over Europe, Adv. Sci. Res., 14, 181-186, https://doi.org/10.5194/asr-14-181-2017, **2017**.
- Fallmann J., Emeis, S., Wagner S., Ketterer, Ch., Matcarakis, A., Kruzselyi, I., Zebehazi., G., Kovacs, M., Halenka, T., **Huszár**, P., Belda, M., Tomozeiu, R., Botarelli, L.: Forecasting Models for Urban Warming in Climate Change. In: Musco F. (eds) Counteracting Urban Heat Island Effects in a Global Climate Change Scenario. Springer, Cham, **2016**.
- Bednář J., **Huszár** P., Zemánková K., Pišoft, P., Srovnání modelových odhadů obsahů formaldehydu ve sloupci atmosféry s družicovým měřením – pilotní studie, Meteorologické zprávy, vol. 66, no. 4, str. 110-116, **2013**.

- Zemánková, K., Bednář, J., Brechler, J., **Huszár,** P.: Výpočty koncentrací přízemního ozonu na území ČR pomocí modelu CAMx s přihlédnutím ke vlivu biogenních těkavých organických látek, Meteorologické zprávy, vol. 64, no. 3, str. 79-88, **2011**.
- Halenka, T., **Huszár**, P., Belda, M.: Validation of Coupled Regional Climate Chemistry Simulation in CECILIA EC FP6 Project, in: AIR POLLUTION MODELING AND ITS APPLICATION, Nato Science for Peace and Security Series C - Environmental Security, 439-443, **2010**.
- Halenka, T., **Huszár**, P., Belda, M.: Regional Climate Change Impacts on Air Quality in High Resolution, in: AIR POLLUTION MODELING AND ITS APPLICATION, Nato Science for Peace and Security Series C - Environmental Security, 515-518, 2010.
- Katragkou, E., Zanis, P., Tegoulias, I., Melas, D., Krueger, BC., **Huszar,** P. and Halenka, T: Tropospheric ozone over Europe: an air quality model evaluation for the period 1990–2001, Proceedings of IX EMTE National-International Conference of MeteorologyClimatology and Atmospheric Physics, 28–31 May, Thessaloniki, Greece, p 649, 2008.
- Halenka, T. and **Huszár**, P.: Verification of the air quality model against flight measurement of ship plumes (corridors), in: Proceedings of the Conference on Air Quality in Harbours, DCMR Environmental Protection Agency, Rijmond, 2008.
- Halenka, T., **Huszár**, P., Belda, M.: Verification of Ship Plumes Modelling and Their Impacts on Air Quality and Climate Change in QUANTIFY EC 6FP Project, in: Proceedings 29th NATO/SPS International Meeting on Air Pollution Modelling and its Application, 692 – 693,
- Halenka, T., **Huszár**, P., Belda, M.: Propojení chemického modelu a aerosolů s regionálním klimatickým modelem ve vysokém rozlišení, OVZDUŠÍ, 176 – 181, 2007.